



Forest
Service

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Subject: Brookbank Thinning Project

To: District Ranger, Black Mesa RD, Apache-Sitgreaves NF's

I visited the Black Mesa Ranger District, Apache-Sitgreaves NF's, on November 21, 2008, to discuss and evaluate the Brookbank Thinning project. Gayle Richardson (District Silviculturist) has submitted a proposal to receive Forest Health Protection funding to complete a portion of this project. I describe in this letter what bark beetle activity was observed in the project area, general existing stand conditions, and make recommendations to minimize future bark beetle impacts.

Brookbank Thinning Project

The Brookbank project area was commercially logged using group selection in 1999. A broadcast burn was subsequently conducted in 2001; however, pre-commercial thinning has never been done. The District is proposing to improve overall forest health conditions by non-commercially thinning conifer species across 300 acres within the larger Brookbank project area (**Figure 1**). Secondary benefits would include reduced risk of catastrophic crown fire on the District and nearby private properties and protection of northern goshawk habitat. The project area is just west of the Heber-Overgaard community and several small in-holdings of private lands are also in the vicinity.

The silvicultural prescription would involve thinning all conifers to 20 by 20 foot spacing. Activity slash generated near roads would be piled and burned, and lopped and scattered when occurring further away from roads. Based on my walk-through survey of areas to be treated, stands are uneven-

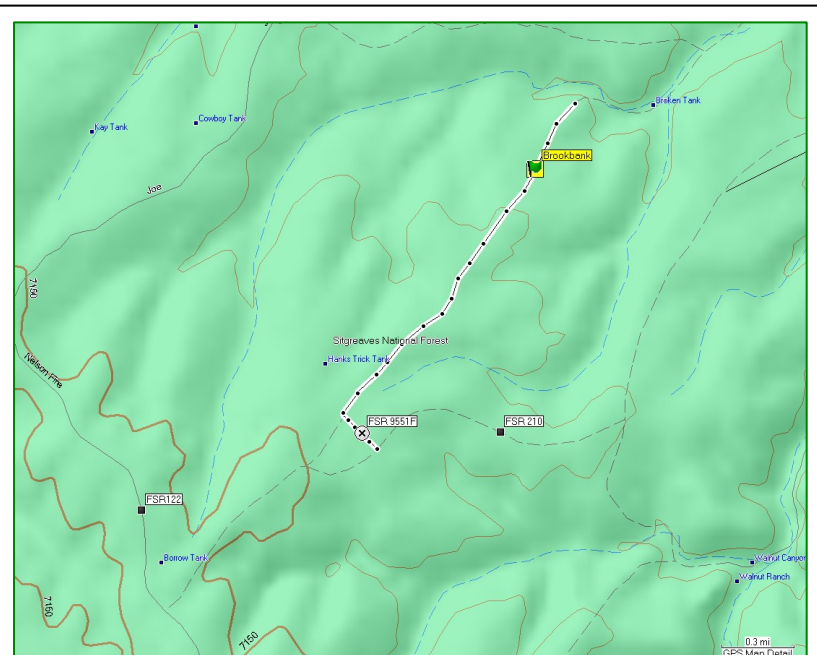


Figure 1. Area surveyed (white-dotted line) within the proposed Brookbank Thinning Project area on the Black Mesa RD.



aged with a mix of ponderosa pine primarily less than 12 inches dbh, juniper, pinyon, and scattered large diameter pines in the overstory (**Figure 2**).

Bark beetle activity is currently low within the stands surveyed, but there was evidence of much higher levels of activity during the outbreak between 2002 and 2004 (**Figure 3**). It appeared that many of the large diameter yellow pines killed by beetles were initially damaged during the broadcast burn of 2001 (**Figure 3**). This likely increased their susceptibility to western pine beetle and possibility ips attacks over the last few years.

Priority areas for regeneration and group selection cuts in the 1999 timber sale included saw-timber and pole-timber infected with dwarf mistletoe. These treatments seemed to be effective in reducing the overall dwarf mistletoe levels as low levels of dwarf mistletoe infection were only observed in a few stands.

Recommendations

High stand densities reduce both individual tree and stand vigor and therefore increases stand susceptibility to mortality from bark beetles (Fettig et al. 2007). Over the past several years the Apache-Sitgreaves NF has seen high levels of ponderosa pine mortality. Competition from smaller trees for water has also greatly increased the mortality risk of scattered large yellow pine. In addition, continuous interlocking crowns and well-developed fuels ladders leaves vegetation on these sites at a high risk of loss from catastrophic wildfire.

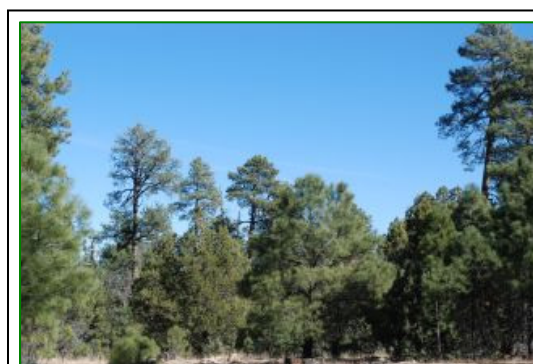


Figure 2. Stand conditions within the proposed Brookbank Thinning Project on the Black Mesa RD.

The thinning treatments are expected to improve the health of residual trees and move the area towards a desired condition. The proposed project area for non-commercial thinning treatments should help to reduce the overall susceptibility of stands to bark beetle attack in the long term as well as improve overall tree vigor, lessen risk of catastrophic wildfire, and improve vegetative species diversity. This project is in compliance with NEPA as the Brookbank Multi-product Sale Decision was signed on June 17, 1994.

Thinning from below has been experimentally demonstrated to increase the resistance level of the residual mature pine overstory (Feeney et al. 1998, Kolb et al. 2007).

However, thinning slash may pose a short-term risk to residual trees in the thinning units or surrounding areas



Figure 3. Large diameter ponderosa pine killed by bark beetles (left) and fire-bark beetles (right) within the Brookbank Thinning Project on the Black Mesa RD.

depending on the timing of thinning, local population of pine engraver beetles, and site and environmental factors such as site quality and precipitation (Fettig et al. 2007). Careful monitoring of beetle populations associated with these thinning projects should be implemented. Parker (1991) and DeGomez et al. (2008) provide guidelines for minimizing pine engraver beetle impacts associated with thinning treatments, such as thinning during periods of bark beetle flight inactivity.

If you have any questions regarding this assessment, please contact me at (928) 556-2074.

/s/ Joel D. McMillin

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cc: Gayle Richardson

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